

Time = 1200.0 seconds.

Compartment	Upper Temp. (K)	Lower Temp. (K)	Inter. Height (m)	Upper Vol. (m^3)		Upper Absorb (m^-1)	Lower Absorb (m^-1)	Pressure (Pa)	Ambient Target (W/m^2)	Floor Target (W/m^2)
1	875.5	439.1	0.7806	15.	(68%)	0.000E+00	0.000E+00	-4.19	3.343E+04	3.998E+04

Fires

Compartment	Fire	Plume Flow (kg/s)	Pyrol Rate (kg/s)	Fire Size (W)	Flame Height (m)	Fire in Upper (W)	Fire in Lower (W)	Vent Fire (W)	Convec. (W)	Radiat. (W)
1	Main	1.57 1.57	5.409E-02 5.409E-02	1.047E+06 1.047E+06	3.31	1.353E-10	1.047E+06	0.000E+00	7.328E+05	3.140E+05

Flow Through Vents (kg/s)

To Compartment	Through Vent	Upper Layer Inflow	Upper Layer Outflow	Lower Layer Inflow	Lower Layer Outflow	Mixing To Upper	Mixing To Lower
1	H Outside #1			6.890E-03			
	H Outside #2		6.662E-03				
	H Outside #3		1.40	1.34			0.170
Outside	H Comp 1 #1				6.890E-03		
	H Comp 1 #2	6.662E-03					
	H Comp 1 #3	1.40			1.34		

The mass balance is just the sum of the flow in minus the flow out. For any compartment, this is just

(“Upper Layer Inflow” + “Lower Layer Inflow” + “Pyrol Rate”) – ((Upper Layer Outflow + Lower Layer Outflow) with the inflow and outflow summed for each vent. Note that the mixing flows are ignored since they are just exchanges between layers in the same compartment. For the above example, it’s just

$$(6.890E-03 + 1.34 + 5.409E-02) - (6.662E-03 + 1.40) = -0.005682 \text{ kg/s}$$

or less than 1/2 percent of the magnitude of the inflow. In theory, at a perfect steady-state solution, this number should be zero. In practice, it never is, but it should be small compared to the flow.